

AN HISTORICAL SYNTHESIS OF MEXICAN MAMMALIAN TAXONOMY

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Abstract.—The known terrestrial mammalian fauna of Mexico is composed of 10 orders, 32 families, 142 genera, and 436 species. Among these species, 160 are monotypic and 276 are polytypic comprising a total of 1033 subspecies; the total of species and subspecies is 1197. Among the 142 genera and 436 species, 6 and 142, respectively, are endemic. The type locality of 923 categories, among the 1193 found in Mexico, lies in Mexican territory. For the remainder, the taxa were described from specimens captured outside the country. By a historical analysis of the 923 taxa named from Mexico, we have delineated four essential periods. The first (1831–1881) was contemporary with the exploration of the western United States. In this period 77 categories were described, 27 of them by Henri de Saussure and Spencer Fullerton Baird. The second period (1887–1919) saw the awakening of interest in research in Mexico by museums and governmental agencies of the United States. This period ended with the Mexican Revolution and the first World War. Four hundred and sixty categories were described, of which Merriam classified 35%. The third period (1922–1942) saw the renewal of exploration trips inside Mexico. One hundred and eighty-four categories were described and it may be considered Nelson and Goldman's period for they classified 52.2% of the taxa named during this period. The fourth period (1943–present) represented a time of synthesis. Families, genera and species complexes were revised. One hundred and ninety categories were described of which Huey classified 28 and Goodwin 22. In all, 73.4% of the mammalian fauna native to Mexico was described by 18 authors, and 101 other authors named the remainder. Marine mammals are excluded from this report.

When one talks about the mammals of a certain region or country, several questions come to mind, for example: how many generic, specific and subspecific categories are there, and what are they? Which of them have become extinct, or are endemic, monotypic, or polytypic? What period was the most prolific in the classification of these taxa? How many authors have participated in the classification? Although the available information on Mexican mammals is extensive and diverse, it has not been summarized in order to answer the questions mentioned above.

The starting point for the preparation of this paper is the monumental work by Hall and Kelson (1959) along with the revisions of Handley (1959), and Van Gelder (1959a, 1959b). From that time, up to the end of 1978, the

cutoff date for the incorporation of information, an extensive list of references about the present-day state of Mexican mammalian nomenclature has appeared. Nevertheless, we will only include the most relevant ones according to proposed nomenclatorial changes.

Among the recent literature pertinent to the historical analysis of Mexican mammalian nomenclature, we must mention the following works, in order to perceive recognized categories and names. We have not made any personal taxonomic judgments, our sole intention being to gather the results of the following authors:

Works that mention the description of new taxa: Alvarez (1962a, 1962b), Alvarez and Ramírez-P. (1968), Anderson (1972), Baker (1967), Banks (1967a, 1967b), Bogan (1978), Bradley and Cockrum (1968), Callahan and Davis (1977), Carleton (1977), Davis (1969, 1970a, 1970b), Davis and Carter (1978), Findley and Jones (1967), Gardner (1962, 1966), Genoways (1971), Genoways and Jones (1968a, 1969b), Goodwin (1963, 1964, 1966), Hall (1962), Hall and Alvarez (1961), Handley (1960, 1966), Huey (1960a, 1960b, 1960c, 1964), Jones (1964), Jones and Genoways (1967), Jones and Lawlor (1965), Jones and Phillips (1964), La Val (1973a), Lee and Schmidly (1977), Lidicker (1960b), Musser (1964), Packard (1960), Phillips and Jones (1971), Pine (1966), Robertson and Musser (1976), Roth (1976), Russell (1968a), Schaldach (1966), Schaldach and McLaughlin (1960), Van Gelder (1959a).

Works that propose changes in nomenclature: Alvarez (1961, 1963), Anderson (1962, 1972), Anderson and Gaunt (1962), Anderson and Nelson (1965), Baker (1969), Banks (1967a), Best (1978), Birney (1973), Callahan (1977), Carleton (1977), Choate (1970), Davis (1965, 1968, 1969, 1970a, 1970b, 1973), Davis and Baker (1974), Davis and Carter (1962), Diersing (1976), Eger (1977), Findley and Jones (1967), Forman et al. (1968), Gardner (1973), Genoways (1973), Genoways and Jones (1968b, 1969a, 1971), Goodwin (1961, 1969), Hall (1960, 1968), Hall and Dalquest (1963), Hall and Genoways (1970), Hall and Jones (1961), Hall and Ogilvie (1960), Handley (1959), Hayward (1970), Hennings and Hoffmann (1977), Hoffmeister (1974), Hoffmeister and de la Torre (1961), Hoffmeister and Diersing (1978), Hooper (1972), Hooper and Musser (1964), Jones (1966), Jones and Alvarez (1962), Jones and Carter (1976), Jones et al. (1971), Kortlucke (1973), La Val (1973a, 1973b), Lawlor (1969, 1971a, 1971b), Lee and Hoffmeister (1963), Lidicker (1960a), Long (1972), Machado-Allison (1967), Musser (1964, 1968, 1969, 1971), Ojasti and Linares (1971), Packard (1960), Paradiso (1967), Patten and Findley (1970), Patton and Dingman (1970), Pine (1967, 1972), Pine et al. (1971), Russell (1968a, 1968b), Schaldach (1966), Schmidly (1972), Schmidly and Hendricks (1976), Smith (1970), Van Gelder (1959b), Waithman and Roest (1977), Wetzel (1975), Williams (1978), Wilson (1973), Yates and Schmidly (1977), Zimmerman (1970).

In this paper, the analysis of the terrestrial mammals of Mexico is divided

into two parts. The first includes the whole mammalian fauna of the country, i.e., species and subspecies inhabiting Mexico, even though only marginally. The second group comprises those species or subspecies whose type locality lies in Mexico.

With the help of the Computation Services Coordination of the Universidad Autónoma Metropolitana-Iztapalapa (UAM-I), we developed a program which enabled us to obtain a series of results among which are the number of categories described per year, per author per year, for Mexico, per state, and those with geographical distribution in Mexico. The orders and families are mentioned in phylogenetic order, and the genera of each family are in alphabetical order. Subfamilies are not mentioned.

The terrestrial mammalian fauna with geographical distribution in Mexico is constituted of 10 orders, 32 families, 142 genera, and 436 species. Among this diversity of species, 160 are monotypic and 276 are polytypic and include 1033 subspecies; these added to the monotypic forms make a total of 1193 (Table 1). This number could increase or decrease with the revision of genera and families, and with a better understanding of those species and subspecies with taxonomic problems.

Among the 142 genera in Mexico, 6 are endemic (Table 1): 1 phyllostomatid, *Musonycteris*; 1 leporid, *Romerolagus*; 1 geomyid, *Zygogeomys*; and 3 cricetids, *Nelsonia*, *Neotomodon* and *Xenomys*.

Among the 436 species, 142 are endemic, as follows.

One marsupial: *Marmosa canescens*.

Nine insectivores: *Cryptotis magna*, *C. mexicana*, *Megasorex gigas*, *Sorex juncensis*, *S. macrodon*, *S. milleri*, *S. oreopolus*, *S. sclateri* and *S. stizodon*.

Fourteen chiropterans: *Musonycteris harrisoni*, *Artibeus hirsutus*, *Myotis carteri*, *M. findleyi*, *M. fortidens*, *M. milleri*, *M. peninsularis*, *M. planiceps*, *M. vivesi*, *Plecotus mexicanus*, *Rhogeessa allenii*, *R. gracilis*, *R. mira* and *R. parvula*.

Seven leporids: *Romerolagus diazi*, *Lepus flavigularis*, *L. insularis*, *Sylvilagus cunicularius*, *S. graysoni*, *S. insonus* and *S. mansuetus*.

Eleven sciurids: *Ammospermophilus insularis*, *Cynomys mexicanus*, *Eutamias bulleri*, *Sciurus allenii*, *S. colliae*, *S. nayaritensis*, *S. oculatus*, *Spermophilus adocetus*, *S. annulatus*, *S. madrensis* and *S. perotensis*.

Twelve geomyids: *Geomys tropicalis*, *Orthogeomys cuniculus*, *O. lanius*, *Pappogeomys alcorni*, *P. bulleri*, *P. fumosus*, *P. gymnurus*, *P. merriami*, *P. neglectus*, *P. tylorhinus*, *P. zinzeri* and *Zygogeomys trichopus*.

Eighteen heteromyids: *Perognathus anthonyi*, *P. arenarius*, *P. artus*, *P. dalquesti*, *P. goldmani*, *P. lineatus*, *P. pernix*, *Dipodomys gravipes*, *D. insularis*, *D. nelsoni*, *D. phillipsii*, *Heteromys gaumeri*, *H. goldmani*, *H. lepturus*, *H. longicaudatus*, *H. nelsoni*, *H. temporalis* and *Liomys specabilis*.

Table 1.—Terrestrial mammals with geographical distribution in Mexico. The genera preceded by an asterisk are endemic to Mexico.

Order Family	Genera	Number of species			Additional subspecies
		Monotypic + Polytypic	= Total		
Marsupialia	<i>Caluromys</i>	—	1	1	2
Didelphidae	<i>Chironectes</i>	—	1	1	1
	<i>Didelphis</i>	—	2	2	3
	<i>Marmosa</i>	—	2	2	6
	<i>Philander</i>	—	1	1	1
Insectivora	<i>Cryptotis</i>	1	4	5	12
Soricidae	<i>Megasorex</i>	1	—	1	—
	<i>Notiosorex</i>	—	1	1	2
	<i>Sorex</i>	6	6	12	13
Talpidae	<i>Scalopus</i>	—	1	1	2
	<i>Scapanus</i>	—	1	1	2
Chiroptera	<i>Balantiopteryx</i>	1	1	2	2
Emballonuridae	<i>Centronycteris</i>	—	1	1	1
	<i>Diclidurus</i>	1	—	1	—
	<i>Pteropteryx</i>	—	2	2	2
	<i>Rynchonycteris</i>	1	—	1	—
	<i>Saccopteryx</i>	1	1	2	1
Noctilionidae	<i>Noctilio</i>	—	1	1	1
Mormoopidae	<i>Mormoops</i>	—	1	1	1
	<i>Pteronotus</i>	1	3	4	4
Phyllostomatidae	<i>Anoura</i>	—	1	1	1
	<i>Artibeus</i>	2	5	7	12
	<i>Carollia</i>	2	1	3	1
	<i>Centurio</i>	—	1	1	1
	<i>Chiroderma</i>	—	2	2	3
	<i>Choeronycterus</i>	1	—	1	—
	<i>Choeronycteris</i>	1	—	1	—
	<i>Chrotopterus</i>	—	1	1	1
	<i>Desmodus</i>	—	1	1	1
	<i>Diaemus</i>	1	—	1	—
	<i>Diphylla</i>	—	1	1	1
	<i>Enchisthenes</i>	1	—	1	—
	<i>Glossophaga</i>	2	1	3	1
	<i>Hylonycteris</i>	—	1	1	2
	<i>Leptonycteris</i>	2	—	2	—
	<i>Lonchorhina</i>	—	1	1	1
	<i>Macrophyllum</i>	1	—	1	—
	<i>Macrotus</i>	1	1	2	2
	<i>Micronycteris</i>	3	1	4	1
	<i>Mimon</i>	1	1	2	1
	* <i>Musonycteris</i>	1	—	1	—
	<i>Phylloderma</i>	—	1	1	1
	<i>Phyllostomus</i>	—	1	1	1

Table 1.—Continued.

Order Family	Genera	Number of species			Additional subspecies
		Monotypic	Polytypic	Total	
	<i>Sturnira</i>	—	2	2	3
	<i>Tonatia</i>	2	1	3	1
	<i>Trachops</i>	—	1	1	1
	<i>Uroderma</i>	1	1	2	3
	<i>Vampyressa</i>	—	1	1	1
	<i>Vampyrodes</i>	—	1	1	1
	<i>Vampyrops</i>	1	—	1	—
	<i>Vampyrum</i>	—	1	1	1
Natalidae	<i>Natalus</i>	—	1	1	2
Thyropteridae	<i>Thyroptera</i>	—	1	1	1
Vespertilionidae	<i>Anthrozous</i>	—	2	2	6
	<i>Eptesicus</i>	1	2	3	5
	<i>Euderma</i>	1	—	1	—
	<i>Idionycteris</i>	1	—	1	—
	<i>Lasionycteris</i>	1	—	1	—
	<i>Lasiurus</i>	1	4	5	7
	<i>Myotis</i>	8	12	20	24
	<i>Nycticeius</i>	—	1	1	2
	<i>Pipistrellus</i>	—	2	2	5
	<i>Plecotus</i>	1	1	2	2
	<i>Rhogeessa</i>	5	—	5	—
Molossidae	<i>Eumops</i>	—	5	5	6
	<i>Molossops</i>	—	1	1	1
	<i>Molossus</i>	2	3	5	3
	<i>Promops</i>	—	1	1	1
	<i>Tadarida</i>	3	2	5	4
Primates	<i>Alouatta</i>	1	1	2	1
Cebidae	<i>Ateles</i>	—	1	1	1
Edentata	<i>Cyclopes</i>	—	1	1	1
Myrmecophagidae	<i>Tamandua</i>	1	—	1	—
Dasypodidae	<i>Dasypus</i>	—	1	1	1
Lagomorpha	<i>Lepus</i>	2	3	5	18
Leporidae	* <i>Romerolagus</i>	1	—	1	—
	<i>Sylvilagus</i>	3	5	8	28
Rodentia	<i>Ammospermophilus</i>	2	2	4	6
Sciuridae	<i>Cynomys</i>	1	1	2	1
	<i>Eutamias</i>	—	4	4	10
	<i>Glaucomys</i>	—	1	1	5
	<i>Sciurus</i>	1	11	12	22
	<i>Spermophilus</i>	3	7	10	25
	<i>Tamiasciurus</i>	—	1	1	1
Geomysidae	<i>Geomys</i>	1	2	3	2

Table 1.—Continued.

Order Family	Genera	Number of species			Additional subspecies
		Monotypic + Polytypic	=	Total	
<i>Heteromyidae</i>	<i>Orthogeomys</i>	2	2	4	20
	<i>Pappogeomys</i>	4	5	9	43
	<i>Thomomys</i>	—	2	2	75
	* <i>Zygogeomys</i>	—	1	1	2
<i>Castoridae</i>	<i>Perognathus</i>	5	15	20	79
	<i>Dipodomys</i>	3	7	10	41
	<i>Heteromys</i>	6	1	7	2
	<i>Liomys</i>	1	3	4	12
<i>Cricetidae</i>	<i>Castor</i>	—	1	1	3
<i>Cricetidae</i>	<i>Baiomys</i>	—	2	2	12
	<i>Microtus</i>	4	3	7	12
	* <i>Nelsonia</i>	—	1	1	3
	<i>Neotoma</i>	10	6	16	54
	* <i>Neotomodon</i>	—	1	1	2
	<i>Nyctomys</i>	—	1	1	4
	<i>Ondatra</i>	—	1	1	2
	<i>Onychomys</i>	—	2	2	12
	<i>Oryzomys</i>	4	4	8	32
	<i>Otonyctomys</i>	1	—	1	—
	<i>Ototylomys</i>	—	1	1	2
	<i>Peromyscus</i>	29	22	51	104
	<i>Reithrodontomys</i>	3	8	11	39
	<i>Rheomys</i>	1	1	2	1
<i>Erethizontidae</i>	<i>Scotinomys</i>	—	1	1	1
	<i>Sigmodon</i>	3	4	7	19
<i>Dasyproctidae</i>	<i>Tylomys</i>	1	1	2	5
	* <i>Xenomys</i>	1	—	1	—
<i>Carnivora</i>	<i>Coendou</i>	—	1	1	2
	<i>Erethizon</i>	—	1	1	1
<i>Dasyproctidae</i>	<i>Agouti</i>	—	1	1	1
	<i>Dasyprocta</i>	1	1	2	2
<i>Canidae</i>	<i>Canis</i>	—	2	2	12
	<i>Urocyon</i>	—	1	1	8
	<i>Vulpes</i>	—	1	1	3
<i>Ursidae</i>	<i>Ursus</i>	2	2	4	4
<i>Procyonidae</i>	<i>Bassariscus</i>	—	2	2	13
	<i>Nasua</i>	1	1	2	3
	<i>Potos</i>	—	1	1	2
	<i>Procyon</i>	1	2	3	9
<i>Mustelidae</i>	<i>Conepatus</i>	—	3	3	10
	<i>Eira</i>	—	1	1	1
	<i>Galictis</i>	—	1	1	1
	<i>Lutra</i>	—	1	1	1

Table 1.—Continued.

Order Family	Genera	Number of species			Additional subspecies
		Monotypic + Polytypic = Total	Total		
Felidae	<i>Mephitis</i>	—	2	2	7
	<i>Mustela</i>	—	1	1	9
	<i>Spilogale</i>	—	2	2	10
	<i>Taxidea</i>	—	1	1	1
Felidae	<i>Felis</i>	—	5	5	21
	<i>Lynx</i>	—	1	1	6
Perissodactyla					
Tapiridae	<i>Tapirus</i>	1	—	1	—
Artiodactyla					
Tayassuidae	<i>Dicotyles</i>	—	1	1	7
Tayassu	<i>Tayassu</i>	—	1	1	1
Cervidae					
<i>Mazama</i>	—	1	1	2	
<i>Odocoileus</i>	—	2	2	19	
Antilocapridae	<i>Antilocapra</i>	—	1	1	3
Bovidae					
<i>Bison</i>	—	1	1	1	
	<i>Ovis</i>	—	1	1	3

Sixty-five cricetids: *Nelsonia neotomodon*, *Neotoma allenii*, *N. angustata*, *N. anthonyi*, *N. bunkerii*, *N. bryanti*, *N. goldmani*, *N. martinensis*, *N. nelsoni*, *N. palatina*, *N. phenax*, *N. varia*, *Neotomodon alstoni*, *Oryzomys fulgens*, *O. melanotis*, *O. nelsoni*, *O. peninsulae*, *Peromyscus aztecus*, *P. banderanus*, *P. bullatus*, *P. caniceps*, *P. chinanteco*, *P. dickeyi*, *P. eva*, *P. evides*, *P. furvus*, *P. guardia*, *P. hooperi*, *P. hylocetes*, *P. interparietalis*, *P. lepturus*, *P. madrensis*, *P. megalops*, *P. mekisturus*, *P. melanocarpus*, *P. melanophrys*, *P. melanotis*, *P. oaxacensis*, *P. ochraventer*, *P. pembertoni*, *P. perfulvus*, *P. polius*, *P. pseudocrinitus*, *P. sejugis*, *P. simulatus*, *P. stimulus*, *P. slevini*, *P. spicilegus*, *P. stephani*, *P. thomasi*, *P. winkelmanni*, *P. yucatanicus*, *P. zarhynchus*, *Reithrodontomys burti*, *R. chrysopsis*, *R. hirsutus*, *R. spectabilis*, *Rheomys mexicanus*, *Sigmodon allenii*, *S. leucotis*, *Tylomys bullaris*, *Xenomys nelsoni*, *Microtus oaxacensis*, *M. quasiater* and *M. umbrosus*.

One dasyproctid: *Dasyprocta mexicana*.

One ursid: *Ursus kennerleyi*.

Two procyonids: *Nasua nelsoni* and *Procyon pygmaeus*.

One mustelid: *Spilogale pygmaea*.

Of the 1193 categories of terrestrial mammals occurring in Mexico, 878 have a precise type locality, 15 have been later restricted, 29 have only the state or region or an even more general description and 1 is unknown, but probably was also in Mexico. Assuming that all these taxa were described

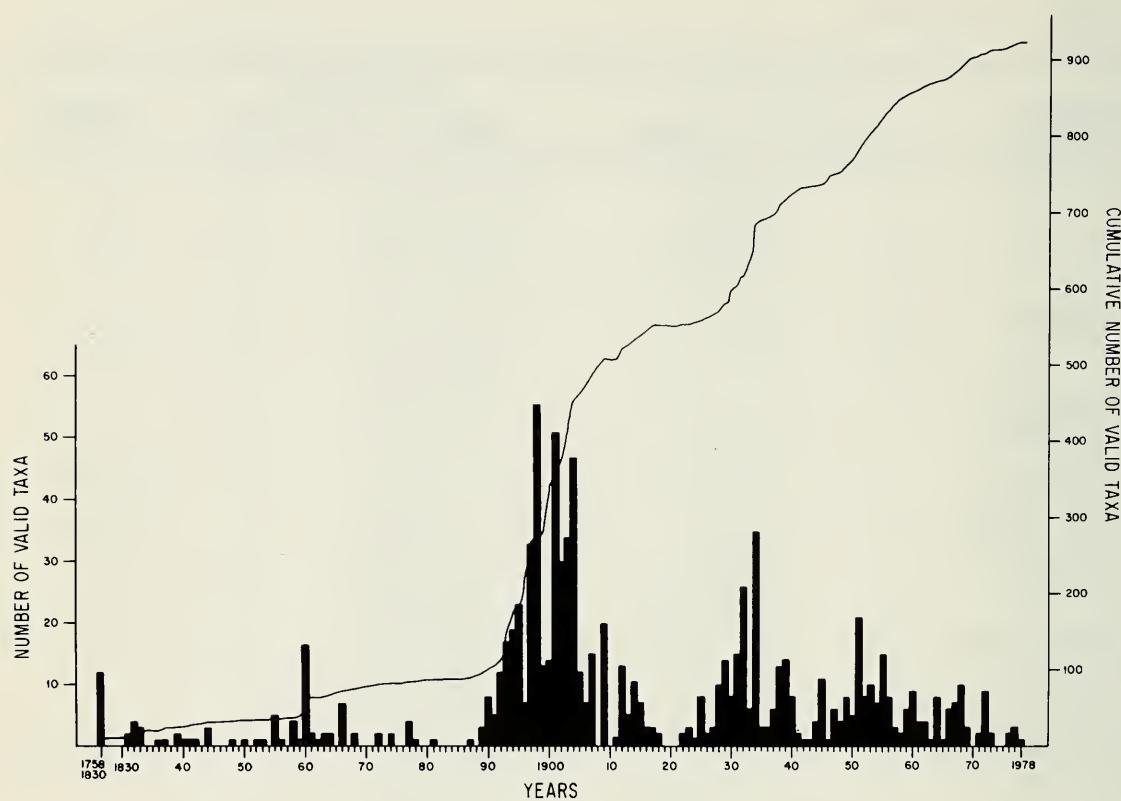


Fig. 1. Number of species and subspecies of mammals described from Mexico from 1758 to 1978. The bars represent the number of currently accepted names, and the line the cumulative number of taxa.

with Mexican specimens, we have a total of 923 (Fig. 1) that represents 77.4% of the total of the Mexican terrestrial mammals.

In the remaining 270 categories, the type locality in the original description lies outside of Mexican territory. In 242, the type locality is precise, in 23 it is not, in 4 it was later restricted, and in 1 it is unknown.

An historical analysis of the 923 taxa of mammals native to Mexico, considering the order in which they were reported in the literature, permits us to acknowledge arbitrarily 4 fundamental periods: the first from 1831 to 1881, the second from 1887 to 1919, the third from 1922 to 1942, and the fourth from 1943 to the present (Fig. 1).

Before 1831, 12 species were described by Linnaeus, Erxleben, Gmelin, Kerr, Cuvier, Richardson and Wagler (Table 2), based on specimens from America which arrived at European museums through various routes. These forms are now recognized at the subspecific level. The original information that accompanied these specimens mentioned their provenance only very generally, e.g., America, New Spain or Mexico. The type locality was established later by restriction.

The first period (1831–1881) corresponds with the great expansion of ex-

Table 2.—First taxa described for Mexico.

Taxa	Author and year
<i>Felis pardalis pardalis</i>	Linnaeus, 1758
<i>Nasua nasua molaris</i>	(Linnaeus, 1766)
<i>Spermophilus mexicanus mexicanus</i>	(Erxleben, 1777)
<i>Spermophilus variegatus variegatus</i>	(Erxleben, 1777)
<i>Conepatus semistriatus coneptil</i>	(Gmelin, 1788)
<i>Odocoileus virginianus mexicanus</i>	(Gmelin, 1788)
<i>Coendou mexicanus mexicanus</i>	(Kerr, 1792)
<i>Potos flavus prehensilis</i>	(Kerr, 1792)
<i>Mazama americana temama</i>	(Kerr, 1792)
<i>Sciurus aureogaster aureogaster</i>	(Cuvier, 1829)
<i>Thomomys umbrinus umbrinus</i>	(Richardson, 1829)
<i>Lepus callotis callotis</i>	Wagler, 1830

ploration activity in the western United States. The first works that would later have a decisive impact on research in the mammalian field appeared at this time. *The Viviparous Quadrupeds of America* by Audubon and Bachman was published between 1845 and 1854, *The Mammals of North America* by Baird in 1859, and *Furbearing Animals* by Coues in 1877.

The Smithsonian Institution was founded in 1846 and the United States National Museum, where much of the material collected by the first naturalists was deposited, was established in 1876. Among these first naturalists, the most outstanding were Spencer Fullerton Baird and the military physicians Elliot Coues and Edgar Alexander Mearns, known for their biological works and for the influence they exercised in the following periods.

In this period, 77 forms were described. Outstanding were the works of the Swiss naturalist Henri de Saussure who was in charge of a scientific mission in Central America, whence he went to Mexico where he described 19 forms, and of Baird, the greatest naturalist at the end of the nineteenth century and a pioneer of American vertebrate zoology, who described 8.

The other forms were described by the following authors: 7 by Peters; 6 by Lichtenstein (French naturalist who studied insects); 6 by Gray; 5 by H. Allen; 4 by Coues; 4 by Wagner; 3 by Bennett; 2 each by Le Conte, J. A. Allen, and Hays; and 1 each by Audubon and Bachman, Berlandier, Caton, Dobson, Hamilton-Smith, Richardson, Tschudi, Wagler, and Waterhouse.

The second period (1887–1919) was marked by the awakening of interest in exploration and research in Mexico by museums and governmental agencies of the United States. Trained personnel and large resources were available, resulting in the formation of important collections of mammals from different regions of the country.

The most important part of this period was the one between 1887 and

1909. Later, between 1910 and 1919, the country was agitated by the Mexican Revolution, a significant factor which explains the decrease in exploration, and resulted in the low number of forms described at this time (Fig. 1). Another factor that contributed to this decrease in publications was the first World War (1914–1918).

This period can be considered the one of Clinton Hart Merriam, not only because of the number of taxa he classified, but also because of his supervision of the United States Bureau of Biological Survey, which at that time included E. W. Nelson and E. A. Goldman, among others. In this period, 460 forms were described, of which Merriam classified 164, or 35%. Merriam's activity, along with that of Nelson and Goldman, resulted in 227 taxa, the equivalent of 49.3% of the total described for this period.

Other researchers that stand out for the number of taxa they described, are: J. A. Allen, 63; Nelson and Goldman, 63; Osgood, 42; Thomas, 27; Elliott, 22 and Miller, 13. These authors described 394 of the 460 categories, i.e., 85.6% of the mammals acknowledged for this period. The following authors described the remaining 66: Mearns and Townsend, 9; Howell, 8; J. A. Allen and Chapman and Bailey, 7; Andersen, 3; G. M. Allen, Bangs, Hollister, Bryant, and Ward, 2; Lydekker, Menegaux, Hahn, Sanborn, Grinnell and Swarth, Phillips, Jackson, H. Allen, Coues, Díaz, Rhoads, Stowell, and Major, 1.

The third period (1922–1942) was marked by the renewal of exploration trips inside Mexico. One hundred eighty-four forms were described, and it could be considered the period of Nelson and Goldman who described 96 taxa, or 52.2% of the ones corresponding to this period.

A detailed analysis of the researchers that named these 184 forms gives: Nelson and Goldman with 64; Goldman with 32; Burt with 25, and Huey with 23; Jackson with 6; Benson with 5; Goldman and Kellogg, Hall, Miller and G. M. Allen with 4; Benson and Tillotson, Blossom, Howell, Orr, and Osgood with 2; Anthony, Burt and Hooper, Maillard, Martínez and Villa, Sanborn, Shamell, and Villa with 1.

The fourth period (1943–present) was a continuation of the preceding one, but differs in that it was a time of synthesis. The variation between and within populations was studied. Families, genera, and complexes of species were revised with the help of other disciplines like cytogenetics and biochemistry. Mammals were studied in their natural conditions and in the laboratory. The number of institutions and persons with a professional interest in mammalogy multiplied. In some institutions, several researchers exerted influence directly by their academic production, or by the training of highly qualified personnel.

There are some particularly noteworthy institutions, that have contributed greatly to the study of the mammals of Mexico. We will only mention the most important ones: The University of Kansas, University of Michigan, San Diego Society of Natural History, Michigan State University, the

Table 3.—Selected authors and the number of presently recognized species and subspecies of Mexican mammals they described. The period in which they described the forms is also given.

Author	Number of taxa	Period
C. H. Merriam	164	1887–1907
E. W. Nelson and E. A. Goldman	73	1907–1934
J. A. Allen	65	1877–1906
E. A. Goldman	64	1904–1945
L. M. Huey	51	1905–1964
W. H. Osgood	46	1900–1945
O. Thomas	27	1892–1915
W. H. Burt	26	1932–1948
E. W. Nelson	25	1898–1912
G. G. Goodwin	22	1953–1966
D. G. Elliot	22	1896–1905
H. de Saussure	19	1860–1861
R. H. Baker	16	1951–1967
G. S. Miller	13	1897–1914
R. J. Russell	12	1952–1968
E. T. Hooper	12	1947–1957
E. R. Hall	11	1948–1962
A. H. Howell	10	1902–1928

American Museum of Natural History, the Smithsonian Institution, Texas A. and M. University, Universidad Nacional Autónoma de México and Instituto Politécnico Nacional in México, and, recently, Texas Tech University, and the Carnegie Museum of Natural History.

In this period, 190 categories were described. A detailed analysis of the authors gives: Huey, 28; Goodwin, 22; R. H. Baker, 16; Hooper, and Russell, 12; Anderson, and Dalquest, 9; Hall, 7; Davis, 5; Banks, and Russell and Baker, 4; Alvarez, Genoways and Jones, Goldman, Handley, and Setzer, 3; Benson, Hoffmeister and de la Torre, La Val, Osgood, Packard, Schaldach, and Villa-R., 2; Alvarez and Ramírez-P., Baker and Stains, Bogan, Bradley and Cockrum, Burt, Callahan and Davis, Carleton, Dalquest and Hall, Davis and Lukens, Findley, Findley and Jones, Gardner, Hall and Alvarez, Hall and Dalquest, Hall and Villa, Genoways, Hoffmeister, Jackson, Jones, Jones and Genoways, Jones and Lawlor, Jones and Phillips, Laurie, Lawrence, Lee and Schmidly, Lidicker, Musser, Phillips and Jones, Pine, Robertson and Musser, Roth, Schaldach and McLaughlin, and Van Gelder, 1.

A summary of the researchers who have formed the catalogue of mammals of Mexico is presented in Tables 3 and 4. It is interesting to note that 18 of them described 678 forms or 73.4% of those described for Mexico (923), and the remaining 245 were described by 101 authors, giving 119 as the sum of authors who have proposed names.

Table 4.—Number of authors that have contributed the description of fewer than ten species and subspecies of Mexican mammals.

Number of authors	Taxa	
	Per author	Total
53	1	53
20	2	40
8	3	24
5	4	20
2	5	10
3	6	18
4	7	28
2	8	16
4	9	36

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